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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

AliveCor, Inc.,

Plaintiff,

vs.

Apple Inc.,

Defendant.

CASE NO. 4:21-cv-03958-JSW

**PLAINTIFF ALIVECOR INC.'S MOTION  
TO EXCLUDE CERTAIN OPINIONS  
AND TESTIMONY OF LAUREN J.  
STIROH, Ph.D.**

Date: October 6, 2023

Time: 9 am

Place: Courtroom 5, 2<sup>nd</sup> Floor

The Honorable Jeffrey S. White



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**TO ALL PARTIES AND THEIR COUNSEL OF RECORD:**

**PLEASE TAKE NOTICE** that at 9:00 am on October 6, 2023, or soon thereafter as this matter can be heard before the Honorable Judge Jeffrey S. White in Courtroom 5, Second Floor, United States District Court for the Northern District of California, Oakland Courthouse, 1301 Clay Street, Oakland, CA 94612, Plaintiff AliveCor, Inc. (“AliveCor”) shall and hereby does move the Court pursuant to Federal Rule of Evidence 702 to strike and exclude certain opinions and testimony of Defendant’s proffered expert Dr. Lauren Stiroh.

AliveCor requests that the Court exclude certain opinions and testimony offered by Defendant’s expert Dr. Lauren Stiroh.



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**STATEMENT OF ISSUES TO BE DECIDED**

1. Whether the Court should exclude Dr. Lauren Stiroh’s opinions regarding Apple’s purported procompetitive justifications pursuant to Fed. R. Evid. 702.
2. Whether the Court should exclude Dr. Lauren Stiroh’s opinions regarding her proposed two-sided market definition pursuant to Fed. R. Evid. 702.

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**Other Authorities**

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**I. PRELIMINARY STATEMENT**

Apple’s lead economist, Dr. Lauren Stiroh, Ph.D., offers two opinions untethered from the law or economics. Both rest on faulty premises and *ipse dixit*. Both rest on irrelevant facts. Both will serve only to confuse the jury and issues in the case. Neither is therefore admissible.

*First*, Dr. Stiroh offers numerous “procompetitive justifications” for Apple’s anticompetitive conduct with respect to watchOS heart rhythm analysis apps (“watchOS HRA apps”) by reference to other, irrelevant conduct, like the introduction of a Walkie-Talkie feature on the Apple Watch. Each of these justifications fails to identify procompetitive benefits *within the relevant market in this case* (i.e., the watchOS HRA app market). Moreover, and just as importantly, she offers no justifications for the core anticompetitive conduct at issue: Apple’s decision to eliminate third party access to heart rate data generated by its Heart Rate Path Optimizer (“HRPO”) algorithm. On that issue, she is silent. Dr. Stiroh’s failure to analyze the conduct at issue with reference to either the relevant market or the alleged anticompetitive conduct warrants exclusion of her procompetitive effects opinions. *See In re NCAA Athletic Grant-in-Aid Cap Antitrust Litig.*, 2018 WL 1948593, at \*3 (N.D. Cal. Apr. 25, 2018) (“*Grant-in-Aid Cap I*”), *aff’d sub nom.*, 2018 WL 4241981 (N.D. Cal. Sept. 3, 2018).

*Second*, rather than a watchOS HRA app market, which AliveCor alleges and which incorporates the alleged products at issue (AliveCor’s SmartRhythm and Apple’s IRN, among others), Dr. Stiroh claims the relevant market is a two-sided app transaction market—essentially, the App Store—ignoring that AliveCor does not complain about harm to competition for iOS or watchOS app distribution. More fundamentally, Dr. Stiroh’s two-sided market definition analysis fails to follow her own, self-identified principles for market definition; flagrantly runs afoul of the antitrust principle that economists must identify the relevant market *before* evaluating the conduct at issue (rather than define the market based on conduct); and conflicts with the Supreme Court’s instructions in *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018) (“*Amex*”). Her disregard for the economics and law warrants excluding this opinion as well. *O’Bannon v. NCAA*, 7 F. Supp. 3d 955, 992 (N.D. Cal. 2014), *aff’d in part, vacated in part on other grounds*, 802 F.3d 1049 (9th Cir. 2015).



[REDACTED]

## II. BACKGROUND

### A. AliveCor's Allegations

This case has always focused on Apple's anticompetitive conduct in the market for watchOS HRA apps.<sup>1</sup> *See generally* Dkt. 106; *see also* Dkt. 42 at 1. Specifically, AliveCor alleges that Apple's heartrate algorithm change in watchOS 5 was anticompetitive because it rendered third parties incapable of offering competing watchOS HRA apps. Dkt. 106 ¶¶ 7, 29, 84-89; *see also* Dkt. 42 at 15 ("AliveCor alleges that ... the purpose and effect of [Apple's heartrate algorithm] update was to prevent third parties from identifying irregular heart rate situations and from offering competing heart rate analysis apps.").

Through discovery, AliveCor has pinpointed the change in watchOS 5 that eliminated third parties' ability to provide watchOS HRA apps: Apple's foreclosure of access to the heart rate data generated by its Heart Rate Path Optimizer ("HRPO") algorithm.<sup>2</sup> Prior to watchOS 5, Apple provided third party developers with access to (*i.e.* published) the continuous heart rate data generated by HRPO. Ex. 14<sup>3</sup> (Jafari Rpt.) ¶ 46. This data was critical to third parties' ability to provide watchOS HRA apps because it was their only means to access high frequency, high fidelity heart rate data in real time—a prerequisite to effectively detecting the presence of a medically defined heart condition. Ex. 14 (Jafari Rpt.) ¶¶ 38-42, 46. [REDACTED]

[REDACTED] Nonetheless, Apple ceased publishing HRPO-generated data in watchOS 5, despite maintaining HRPO in the watchOS software and continuing to use the algorithm itself until at least the release of watchOS 7 two-years later. *See* AliveCor's Motion for

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<sup>1</sup> Since the parties first briefed the motion to dismiss, AliveCor updated its description of the relevant market from "heart rate analysis apps" to "heart rhythm analysis apps," because the latter is a more accurate term of the app's function. The fundamental contours of the market, however, remain the same.

<sup>2</sup> A fuller discussion of Apple's foreclosure of HRPO-generated data is included in AliveCor's concurrently-filed Motion for Partial Summary Judgment.

<sup>3</sup> In this memorandum, "Ex. \_\_\_\_" refers to the exhibits attached to the Declaration of Nic V. Siebert filed herewith.

Partial Summary Judgment (“MSJ”) § II.B.2. That foreclosure rendered third-party developers unable to offer HRA functionality, leaving only Apple and its simultaneously-introduced irregular rhythm notification (“IRN”) feature to swallow the entire market.

**B. The Market For watchOS HRA Apps**

The market for watchOS HRA apps, which AliveCor plausibly alleged, *see* Dkt. 42 at 11, and will prove at trial, includes watchOS apps that perform passive, background monitoring of heart rhythm to detect the presence of a medically defined heart condition. Ex. 12 (Cragg Rpt.) ¶ 100.

This Court too found that AliveCor plausibly alleged that Apple had a competing product to SmartRhythm in the IRN. *See* Dkt. 42 at 15.

**C. Dr. Cragg’s Opinions On Anticompetitive Effects And Market Definition**

AliveCor’s economic expert, Dr. Michael Cragg, evaluated the anticompetitive effects of Apple foreclosing access to HRPO data: it eliminated competition in the watchOS HRA app market by breaking SmartRhythm’s and other competitors’ ability to provide effective heart rhythm detection, forcing AliveCor to pull SmartRhythm from the market. Ex. 12 (Cragg Rpt.) ¶ 287. Dr. Cragg—and AliveCor—have been clear and specific about the relevant scope of the conduct at issue: “Apple’s introduction of the Apple Watch Series 4, and any efforts Apple undertook to independently develop and market its own HRA app on the watchOS 5 is not the conduct at issue ... the introduction of Apple hardware and software that facilitated heart rhythm analysis is not the conduct that is at issue in this matter.” *Id.* ¶ 315.

Dr. Cragg also evaluated the relevant market according to long-accepted analytical

frameworks, including, *inter alia*, the Hypothetical Monopolist Test (“HMT”), a SSNIP test,<sup>4</sup> *Brown Shoe* practical indicia factors, special considerations for aftermarkets, and Apple’s own concessions about market definition. Ex. 12 (Cragg Rpt.) § IV.A; *see also Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 975-76 (9th Cir. 2023) (endorsing SSNIP, *Brown Shoe*, and aftermarket analyses). Applying those frameworks, Dr. Cragg opined that the relevant market in this case is watchOS HRA apps. Ex. 12 (Cragg Rpt.) ¶ 100. Apps in this market have four key features: (1) they can detect the presence of a medically defined heart condition, (2) they provide passive, background monitoring of heart rhythm, (3) they are clinically validated, and (4) they are consumer products offered for sale to the general public. *Id.* ¶¶ 107-22. Dr. Cragg found that the HRA app providers in this market included Apple (IRN), AliveCor (SmartRhythm), and an app that a company called Cardiogram developed<sup>5</sup>, but was never able to commercially release due to Apple’s anticompetitive conduct. *Id.* ¶¶ 102, 106, 124; Ex. 21 (Stiroh Ex. 3) at 1.<sup>6</sup>

#### **D. Dr. Stiroh’s Opinions On Procompetitive Rationales And Market Definition**

Dr. Stiroh offered both an opening and rebuttal report for Apple. Dr. Stiroh’s opening report focused on Apple’s purported procompetitive justifications, an issue on which Apple bears the burden of proof. *See NCAA v. Alston*, 141 S. Ct. 2141, 2160 (2021) (Defendant bears the burden to show “a procompetitive rationale *for the restraint*.”). Dr. Stiroh does not offer any justification for Apple’s decision to deny access to HRPO-generated heart rate values, [REDACTED] Ex. 15 (Stiroh Tr.) at 95:11-22 (opining that the introduction of HRNN, not denial of access to HRPO, improved workout heart rate reporting); Ex. 16 (Stiroh Reb. Tr.) at 238:20-239:22 [REDACTED]. Instead, Dr. Stiroh offers four main reasons Apple was supposedly “procompetitive” in this case: (1) introducing new hardware products (including, *inter alia*, the Apple Watch Series 4, ECG hardware, barometric altimeter, and other

<sup>4</sup> “SSNIP” stands for a small but significant and non-transitory increase in price. Ex. 12 (Cragg Rpt.) ¶ 76. The tool is commonly used by economists when performing a HMT. *Id.*

<sup>5</sup> To be clear, Cardiogram did release and may still maintain a heart related app, but it is not and never was a HRA app (*i.e.* it cannot detect a medically defined heart condition like a fib). Ex. 21 (Stiroh Ex. 3) at 1.

<sup>6</sup> *See also* Ex. 5 (APL-ALVCOR\_00066931) at ‘931-932; Ex. 19 (Cha Tr.) at 227:20-228:12; Ex. 2 (APL\_ALVCOR\_00064780 at ‘784; Ex. 3 (APL-ALVCOR\_00100166) at ‘166-167.

[REDACTED]

assorted sensors) was procompetitive; (2) introducing new software products alongside watchOS 5 (including *inter alia*, ECG app, the IRN feature, an “improved heartrate algorithm to better track heartrate during exercise,” as well as features like a Walkie-Talkie App and Bluetooth 5.0) was procompetitive; (3) protecting intellectual property (“IP”) is procompetitive because it avoids revealing proprietary information to third-parties, and (4) enforcing Apple’s App Store Review Guidelines is procompetitive because it facilitates Apple’s ability to maintain user experience and user privacy. Ex. 10 (Stiroh Rpt.) ¶ 13. In framing these justifications, she analyzed conduct that AliveCor expressly alleges did not harm it or competition, *see* Dkt. 106 ¶ 6 (rejecting the notion that Apple’s introduction of these products alone was anticompetitive), and ignored that AliveCor alleges Apple’s introduction of some of these heart health products actually validated AliveCor’s business model and was good for competition and consumers. *Id.*

Dr. Stiroh also offered an opinion on market definition; specifically, that the relevant market is a two-sided app transaction platform market where Apple is a provider of apps (offering a service to app users) and a provider of Application Programming Interfaces (“APIs”) (offering a service to app developers). Ex. 11 (Stiroh Reb. Rpt.) ¶ 8(a)(i). At deposition, Dr. Stiroh then confusingly claimed what she was actually talking about was the App Store. Ex. 16 (Stiroh Reb. Tr.) at 175:8-177:5, 198:8-13, 216:6-217:5. However defined, Dr. Stiroh intends to opine that AliveCor and Apple do not compete with one another in her two-sided market. Ex. 11 (Stiroh Reb. Rpt.) § III.A. As for *how* to define a two-sided market, Dr. Stiroh could not recall whether she had read the Supreme Court’s seminal decision on the issue, *Amex*. Ex. 16 (Stiroh Reb. Tr.) at 188:13-20. She also opined that the two “transactions” in her “transactions” market need not occur simultaneously. *Compare id.* at 202:3-11 (“In my opinion ... they do not need to be simultaneous.”); *with Amex*, 138 S. Ct. at 2286 (“But two-sided transaction platforms, like the credit-card market, are different. These platforms facilitate a single, simultaneous transaction between participants.”).

### III. LEGAL STANDARD

Under *Daubert* and Federal Rule of Evidence 702, the trial court acts as a gatekeeper to ensure that expert testimony “rests on a reliable foundation and is relevant to the task at hand.” *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993); *Kumho Tire Co. v. Carmichael*,

526 U.S. 137, 152 (1999); *Ellis v. Costco Wholesale Corp.*, 657 F.3d 970, 982 (9th Cir. 2011). The relevance requirement asks whether the evidence is a “fit” with the issues to be decided, and whether it tends to help the trier of fact understand or determine a fact in issue. *Daubert*, 509 U.S. at 591; *United States v. Sandoval-Mendoza*, 472 F.3d 645, 654 (9th Cir. 2006). “In assessing the relevance or ‘fit’ of expert testimony, ‘scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.’” *Grant-in-Aid Cap I*, 2018 WL 1948593, at \*2 (quoting *Daubert*, 509 U.S. at 591). The reliability requirement asks whether the reasoning or methodology underlying the testimony is scientifically valid. *Murray v. S. Route Maritime SA*, 870 F.3d 915, 922 (9th Cir. 2017). The proponent of expert testimony has the burden to establish by a preponderance of the evidence that the testimony meets all of these requirements. *Daubert*, 509 U.S. at 592 n.10.; *accord Bldg. Indus. Ass’n of Wash. v. Wash. State Bldg. Code Council*, 683 F.3d 1144, 1154 (9th Cir. 2012).

#### IV. ARGUMENT

##### A. Dr. Stiroh’s Proffered Procompetitive Rationales Do Not “Fit” This Case And Her Analysis Is Methodologically Flawed

Dr. Stiroh’s procompetitive justification opinions lack any “fit” with the present case because they have no relation to the conduct at issue, the market at issue, or to principled economics. *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1321 n.17 (9th Cir. 1995) (“fit” is a higher bar than mere relevance, given that “expert testimony carries special dangers to the fact-finding process because it can be both powerful and quite misleading because of the difficulty in evaluating it.”) (internal citation and quotation omitted).

##### 1. The Alleged Procompetitive Justifications Are Not Tied To The Conduct At Issue In This Case

Each and every procompetitive justification Dr. Stiroh offers has the same, fundamental flaw: it does not relate to the alleged anticompetitive conduct at issue; *i.e.*, Apple’s decision to remove third-party access to HRPO-generated heart rates.

Instead, Dr. Stiroh mentions a bevy of Apple conduct, some of it relevant only generally to the case (*i.e.* the introduction of Apple’s competing product, the IRN), some of it tangentially related to the case (*i.e.* the introduction of Apple Watch Series 4), and some of it wholly unrelated to the case (*i.e.* the introduction of a Walkie-Talkie App). But procompetitive rationales must be

[REDACTED]

1 *justifications for the alleged anticompetitive conduct. Alston*, 141 S. Ct. at 2160 (Defendant must  
2 show “a procompetitive rationale for the restraint.”); *see also In re Impax Labs, Inc.*, 2019 WL  
3 1552939, at \*31 (F.T.C. 2019) (“Impax must articulate the specific link between the challenged  
4 restraint and the purported justification, and demonstrate that the restraint in fact advance[s]  
5 procompetitive goals.”). Dr. Stiroh ties none of her purported justifications to the conduct at issue.  
6 Having failed to do so, her proffered justifications must be excluded, because they will do nothing  
7 but confuse the issues for the jury. *See, e.g., Apotex, Inc. v. Cephalon, Inc.*, 2017 WL 10963610, at  
8 \*2 (E.D. Pa. May 24, 2017) (excluding evidence and testimony on alleged procompetitive effects in  
9 markets for drugs unrelated to the drug at issue because such evidence would confuse the jury).

10 Precious little of Dr. Stiroh’s opinions has any relevance to the case at hand. *First*, Apple’s  
11 introduction of new hardware does not relate to Apple’s foreclosure of access to HRPO data on  
12 watchOS (*i.e.*, operating system *software*). Even if, for example, Apple Watch Series 4 was  
13 procompetitive in the smartwatch foremarket because it was a product improvement over prior  
14 models due to a number of additional features and functionalities, Ex. 10 (Stiroh Rpt.) ¶¶ 66, 84,  
15 AliveCor never alleged that Apple’s introduction of Apple Watch Series 4 was anticompetitive. *See*  
16 Dkt. 106 ¶ 6. Dr. Stiroh’s focus on this conduct, even if it could be linked to Apple’s foreclosure of  
17 access to HRPO (which it cannot), is thus irrelevant as a matter of law. *Alston*, 141 S. Ct. at 2160-  
18 62 (requiring defendant to offer a procompetitive justification for the actual restraint at issue).

19 *Second*, whether it was procompetitive for Apple to introduce new software products in  
20 watchOS 5 is irrelevant because none of the products Dr. Stiroh identifies depend on or relate to  
21 foreclosing access to HRPO data. For example, AliveCor never alleged that Apple’s introduction of  
22 the IRN or ECG app was anticompetitive—it alleged the opposite. Nor did the introduction of IRN  
23 and ECG depend on foreclosing access to HRPO data. Apple maintained and used the HRPO  
24 algorithm at least until it released watchOS 7, long after the introduction of IRN and ECG. *See* MSJ  
25 § II.B.2. Similarly, Apple’s introduction of its supposed “improved heartrate algorithm,” HRNN, is  
26 irrelevant because HRNN and HRPO existed and operated simultaneously. Foreclosing access to  
27 HRPO data was separate and apart from the introduction of HRNN. Further, Dr. Stiroh admits that,  
28 at most, HRNN was only an improvement for the purpose of tracking heart *rate* (not heart rhythm)

[REDACTED]

1 during *exercise*; thus, any rationale premised on HRNN is improperly divorced from the relevant  
2 market for HRA apps. *See infra* § IV.A.2. Finally, Dr. Stiroh’s suggestion that Apple’s introduction  
3 of the Walkie-Talkie App or Bluetooth 5.0 justifies its foreclosure of access to HRPO data strains  
4 credulity and itself warrants exclusion—it has nothing to do with the case.

5 *Third*, Dr. Stiroh opines that Apple’s decision not to publish certain data to third parties is  
6 procompetitive because it protects Apple’s IP. Ex. 10 (Stiroh Rpt.) ¶¶ 13(b), 62-65. However, she  
7 identifies no such IP and, more importantly, ties her opinion to the “raw PPG data” from the Apple  
8 Watch’s PPG sensors. *Id.* at ¶ 65. AliveCor does not contend withholding access to the “raw PPG  
9 data” is problematic. [REDACTED]

10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]

15 *Fourth*, Apple’s enforcement of its App Store Review Guidelines is irrelevant because it is  
16 not tied to Apple’s foreclosure of access to HRPO data. AliveCor alleged that Apple pretextually  
17 complicated the App Store approval process for Kardia with SmartRhythm. *See* Dkt. 106 at  
18 ¶¶ 73-77. But economically, AliveCor’s allegations with respect to the App Store Review  
19 Guidelines touch on Apple’s *market power*<sup>7</sup> as well as provide evidence of its anticompetitive intent  
20 for the later algorithm change—they are not allegations that Apple harmed competition through  
21 application of the Guidelines. Indeed, Apple *approved* SmartRhythm, reflecting that it  
22 acknowledged AliveCor made proper use of Workout Mode and the HRPO-generated heart rates  
23 provided by Workout Mode. Ex. 20 (Tan Tr.) at 183:17-21. Moreover, Dr. Stiroh admitted that her  
24 purported privacy rationale for App Store Review Guideline application did not relate to Apple’s

25  
26 <sup>7</sup> *See* Ex. 13 (Cragg Reb. Rpt.) ¶ 55 (“Apple controls access to the relevant market here, the  
27 market for watchOS HRA Apps.”); Ex. 12 (Cragg Rpt.) ¶¶ 60-70 (discussing app stores). Indeed,  
28 Dr. Cragg specifically testified that he was *not* assessing competitive effects from Apple’s App Store  
Review guidelines. Ex. 18 (Cragg Reb. Tr.) at 38:15-39: [REDACTED]



1 algorithms. *See* Ex. 15 (Stiroh Tr.) at 113:4-16. She likewise admitted that she did not know if the  
2 algorithm change at issue had a security benefit. *Id.* at 114:20-25, 116:4-8. Given Dr. Stiroh's own  
3 admissions and AliveCor's allegations, permitting her to offer an opinion that Apple's App Store  
4 Review process is procompetitive will only serve to confuse the jury. *Brice v. Haynes Invs., LLC.*,  
5 548 F. Supp. 3d 882 (N.D. Cal. 2021) (excluding irrelevant expert testimony because it "raises a  
6 significant chance of misleading the jury and using up valuable trial time on issues that have no  
7 relevance to the legal and factual matters to be resolved by the jury.").

8 In short, Dr. Stiroh fails to analyze the *relevant* conduct. Instead, she seeks to justify Apple's  
9 decision to cut off access to HRPO by reference to unrelated conduct. This ruse warrants exclusion  
10 because it raises legally and factually irrelevant rationales for Apple's bad conduct.

## 11 **2. The Alleged Procompetitive Justifications Are Not Tied To The Market** 12 **At Issue In This Case**

13 Dr. Stiroh's purported procompetitive justifications are irrelevant and inadmissible for a  
14 second, independent reason: they bear no relation to the market at issue. Procompetitive rationales  
15 are dependent on market definition, and, accordingly, those premised a market having nothing to do  
16 with the relevant products at issue are irrelevant. *United States v. Topco Assocs., Inc.*, 405 U.S. 596,  
17 610 (1972) ("Implicit in such freedom is the notion that it cannot be foreclosed with respect to one  
18 sector of the economy because certain private citizens or groups believe that such foreclosure might  
19 promote greater competition in a more important sector of the economy."). Courts regularly exclude  
20 the opinions of experts who offer procompetitive justifications outside of the relevant market.  
21 *Grant-in-Aid Cap I*, 2018 WL 1948593, at \*2-3 (excluding procompetitive justifications premised  
22 on wrong market definition); *see also Apotex*, 2017 WL 10963610, at \*2 (same, because "evidence  
23 of procompetitive effects in separate and unrelated markets may tend to focus the jury's attention  
24 on irrelevant matters.").

25 Even assuming that any of Dr. Stiroh's purported procompetitive justifications had actual  
26 beneficial effects to consumers, those effects do *not* occur in the watchOS HRA app market.  
27 Dr. Stiroh opines that Apple's introduction of HRNN was procompetitive because it was an  
28 improvement over Apple's previously-offered HRPO algorithm. Ex. 10 (Stiroh Rpt.) ¶ 66. But



Dr. Stiroh testified repeatedly that HRNN was only a “product improvement” for the purposes of tracking heartrate during a workout, not medical monitoring. Ex. 15 (Stiroh Tr.) at 84:20-85:5. Nor is she qualified to offer any opinion on HRNN’s improvement as to medical monitoring. *Id.* at 12:1-13:9 (admitting she has no expertise in medicine, heart health, engineering, source code, or designing operating systems). Thus, Dr. Stiroh can, and does, only offer a cross-market rationale, untethered to watchOS HRA apps. An improvement for *heartrate tracking* during exercise is irrelevant for *heart rhythm analysis* apps designed to detect medically defined heart conditions—and Dr. Stiroh offers no opinions why one is equivalent to the other.

At best, Dr. Stiroh’s procompetitive justifications relate to her flawed two-sided market. *See infra* § IV.B. But she “fails to analyze how Apple’s conduct in the relevant market is related to the other markets in which the procompetitive effects allegedly occur, and also fails to explain how Apple would be a materially less effective competitor in any of those markets without its core restraint[.]” *See* Ex. 13 (Cragg Reb. Rpt.) ¶ 74. Dr. Stiroh’s failure to link her procompetitive justifications to *any* viable market necessarily requires exclusion.

*Grant-in-Aid Cap I* is instructive. 2018 WL 1948593, at \*2-3. In that case, the court found that Dr. Elzinga—expert for the NCAA—opined that restrictions on college athletes were procompetitive because they promoted amateurism, which in turn provided benefits to consumers in the “multi-sided market for college education in the United States.” *Id.* at \*2. Because the court excluded Dr. Elzinga’s multi-sided market definition, and because his purported benefits occurred only in one, now irrelevant “side” of that definition, the court excluded Dr. Elzinga’s procompetitive justification opinions. *Id.* at \*2-3. Dr. Stiroh’s opinions fare no better. She offers *no* justifications related to HRA apps, instead offering only justifications in what she—like Dr. Elzinga—terms a “multi-sided market[.]” Ex. 16 (Stiroh Reb. Tr.) at 175:8-176:4. Accordingly, her procompetitive justification opinion must be excluded for this independent reason.

### **3. Dr. Stiroh’s Methodology Is Counter To Her Own Academic Work And Best Practices**

Finally, Dr. Stiroh’s opinion should be excluded because it is methodologically unsound and contrary to her own expert work. Experts must offer opinions that comport with scientific principles

and ordinary industry practice. *Rovid v. Graco Children's Prod. Inc.*, 2018 WL 5906075, at \*3 (N.D. Cal. Nov. 9, 2018). Experts who offer litigation opinions contrary to their own academic work should be treated with skepticism. *Id.* at \*6 (an expert must “employ[] in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.”) (quoting *Kumho*, 526 U.S. at 152).

Consistent with the law, *see supra* § IV.A.1, economists evaluate competitive effects—whether positive or negative—by reference to the conduct at issue. Dr. Stiroh’s own cited materials state that the starting point for a competitive effects analysis is establishing the appropriate counterfactual; *i.e.*, but-for world. *See* Ex. 8 (Antitrust and Innovation Article) at 154-158. In high-tech markets like the one at issue here, there is a danger that experts will conflate natural technological progress with “procompetitive” gains: “Defendants sometimes point to these market improvements (cheaper and faster products) as evidence that no exclusionary conduct has taken place. However, the correct question is whether the improvements in speed and reductions in price would have been even larger absent the exclusionary conduct.” *Id.* at 155; *see also* Ex. 15 (Stiroh Tr.) at 67:25-68:7 (agreeing that but-for comparisons are the appropriate counterfactual). Nevertheless, it is this but-for analysis that Dr. Stiroh fails to conduct. *See supra* § IV.A.1. Each of the alleged “benefits” she references would happen with or without Apple’s decision to remove third party access to HRPO-generated heart rates. Accordingly, any such “benefits” are economically irrelevant. *E.E.O.C. v. Morgan Stanley & Co.*, 324 F. Supp. 2d 451, 464-65 (S.D.N.Y. 2004) (excluding the majority of rebuttal economist’s opinions on the grounds that the “proposed testimony and opinions are not relevant to the claims in this case.”).

That two events occurred contemporaneously—*e.g.*, the introduction of the Series 4 Apple Watch and the removal of third party access to HRPO-generate heart rates—does *not* mean the two are linked, and does *not* mean the effects of one can be attributed to the other. Dr. Stiroh does not link them, warranting exclusion. *See, e.g., Rearden LLC v. Walt Disney Co.*, 2021 WL 6882227, at \*7 (N.D. Cal. July 12, 2021) (excluding expert for confusing correlation for causation); *Rambus Inc. v. Hynix Semiconductor Inc.*, 254 F.R.D. 597, 605 (N.D. Cal. 2008) (“[T]he Manufacturers’ products incorporate Rambus’s claimed inventions; those products have been successful; *ergo* Rambus’s

inventions caused the products' success. Rule 702(2) demands more and it provides an independent basis for preventing Mr. Murphy from testifying[.]").

Dr. Stiroh herself concedes this point in her non-testifying work—"[t]he distinction between correlation and causation is often willfully blurred by experts or lawyers[.]" Ex. 9 (Proving Causation in Damages Analyses Article) at 183. Spurious correlations of this type could lead to implausible results, like attributing stock market outcomes to who wins the Super Bowl. *Id.* at 183-84. Thus, as Dr. Stiroh concedes, that Apple introduces new products at the same time that it excludes a competitor does not itself justify the exclusion. Yet, she engages in the exact willful blurring she excoriates when not being paid by Apple.

The absurdity of Dr. Stiroh's position is clear in her testimony: she would have considered Apple TV's potential procompetitive justifications in this case if she had been asked to do so by Apple's counsel. Ex. 15 (Stiroh Tr.) at 70:11-71:12. She likewise testified she would have had an expectation that Apple TV was relevant, even if she did not understand why. *Id.* Dr. Stiroh's unthinking acceptance of what Apple's counsel claims to be relevant, irrespective of the economic reality, undermines her credibility, but more importantly does not comport rigorous economic analysis. *Rowe Entertainment, Inc. v. William Morris Agency, Inc.*, 2003 WL 22124991, at \*3 (S.D.N.Y. Sept. 15, 2003) ("[A]ny expert should be aware that a party and counsel in a litigation have an interest in the outcome and that an expert study should not be dependent on the information they supply."). In short, her concessions prove her analysis is not methodologically sound.

**B. Dr. Stiroh's Two-Sided Market Definition Opinion Is Irrelevant Because It Ignores The Relevant Products And Their Substitutes**

Dr. Stiroh claims that the proper market definition in this case is an amorphous two-sided app transaction platform market where Apple is either a provider of services to app developers, or the purveyor of the App Store to consumers and developers. Ex. 16 (Stiroh Reb. Tr.) at 175:8-177:5, 198:8-13, 216:6-217:5. Even if it were coherent, this market definition flies in the face of the relevant law on two-sided markets, AliveCor's allegations, and the products at issue.

*First*, contrary to well-settled law and economics, Dr. Stiroh ignores the relevant products and their substitutes. She concedes that "[t]he market definition exercise ultimately focuses on

identifying products that are “‘reasonably interchangeable’ *with the products that are central to the antitrust claims in a case.*” Ex. 11 (Stiroh Reb. Rpt.) ¶ 58 (emphasis added). But she proposes a market definition that neither includes nor considers the products at issue: watchOS HRA apps.

AliveCor’s relevant product in this case is SmartRhythm, which continuously monitored users for heart rhythm irregularities. *See supra* § II.B. Dr. Stiroh does not define her market by looking at the reasonable substitutes for SmartRhythm; instead, she begins by identifying—ironically, given the foregoing discussion—the relevant conduct. Ex. 11 (Stiroh Reb. Rpt.) ¶ 19. Because that *conduct* involved Apple’s APIs, Dr. Stiroh jumps to the conclusion that the relevant *product* must be the provision of those APIs. *Id.* ¶ 20. Because Apple “sells” APIs to developers, she claims the relationship between Apple and AliveCor is solely vertical (seller/buyer) rather than horizontal (competitor/competitor). *Id.* ¶¶ 21-28. She does so by ignoring that Apple released its own product capable of monitoring users for heart rhythm irregularities, the IRN. *See generally id.* § II.A. (mentioning the IRN only once, and only to note that it is free to activate). Accordingly, Dr. Stiroh opines that the relevant market is the one in which Apple is a “platform operator.” *See id.* ¶ 19.

Dr. Stiroh’s analysis is master-class misdirection and sufficiently convoluted that even describing the logic is difficult. Notably, Dr. Stiroh herself would not commit to what the relevant “platform” is. *See* Ex. 16 (Stiroh Reb. Tr.) at 181:12-19. Her virtually limitless market definition appears to include any market in which Apple competes. *Id.* at 183:16-23. Functionally, Dr. Stiroh’s relevant market is the market for a consumer electronic ecosystem, *i.e.* the Apple ecosystem.

Dr. Stiroh’s preferred market definition profoundly departs from sound principles of market definition. She does not consider reasonable interchangeability of products. *Id.* at 183:24-184:19. Yet, she *admits* that reasonable interchangeability is the central analysis. Ex. 11 (Stiroh Reb. Rpt.) § IV.A (“Relevant Market Definition Is Based on Products Considered as Substitutes by Consumers”). She performs no Hypothetical Monopolist Test. *See generally* Ex. 11 (Stiroh Reb. Rpt.) § III. Yet, she *admits* that such a test is typical for market definition. *Id.* ¶¶ 60-61. Furthermore, her approach flouts the law, which requires that courts define the relevant market *first*, before proceeding to analyze conduct and effects. *See FTC v. Qualcomm Inc.*, 969 F.3d 974, 992 (9th Cir.

2020) (“A threshold step in any antitrust case is to accurately define the relevant market, which refers to ‘the area of effective competition.’”) (quoting *Amex*, 138 S. Ct. at 2285). It likewise flouts the requirement that the relevant market “must encompass the product at issue as well as all economic substitutes for the product.” *Newcal Indus., Inc. v. Ikon Office Sol.*, 513 F.3d 1038, 1045 (9th Cir. 2008).

*Second*, Dr. Stiroh’s two-sided market definition contradicts controlling law on two-sided market definition. The law is clear that a two-sided transaction platform market exists only when the product at issue is a *transaction*. See *Amex*, 138 S. Ct. at 2287 (“[T]he product that credit-card companies sell is transactions....”). The products at issue here are HRA apps, not transactions. *Amex* is similarly clear that a two-sided transaction platform market requires “(1) simultaneous (2) one-to-one and (3) direct correspondence between the transactions on one side of the platform and those on the other side.” Phillip Areeda & Herbert Hovenkamp, *Antitrust Law: An Analysis of Antitrust Principles and Their Application*, ¶ 565(d)(3) (last updated May 2023) (citing *id.* at 2286). But Dr. Stiroh disregards *Amex*’s requirement of simultaneity. Ex. 16 (Stiroh Reb. Tr.) at 202:3-11 (“In my opinion, [transactions] do *not* need to be simultaneous.”). And it is clear that her proposed market fails *Amex*’s framework, given that she does not even identify what “transactions” are supposedly at issue and/or implicated by the alleged exclusionary conduct. Unfortunately, none of this is surprising: Dr. Stiroh testified she could not recall even reading the *Amex* decision. *Id.* at 188:13-20.

The Ninth Circuit has previously rejected similarly incoherent market theories from Dr. Stiroh. In *O’Bannon*, Dr. Stiroh opined that “the NCAA does not restrain competition in any market” and “anticompetitive effects cannot arise unless consumers in a ‘downstream market’ are harmed.” 7 F. Supp. 3d at 972. As with *Grant-in-Aid Cap I*, *O’Bannon* related to the NCAA’s restraints on paying college athletes; effectively, a monopsony theory. *Id.* at 991. Dr. Stiroh’s opinion—like Dr. Elzinga’s in *Grant-in-Aid Cap I*—depended on offsetting the effects of the NCAA’s conduct in one market with benefits in another, unrelated market. The Ninth Circuit concluded “Whatever merit Dr. Stiroh’s views might have among economists, they are not

supported by the relevant case law.” *Id.* at 992.<sup>8</sup>

Indeed, the NCAA attempted to salvage their argument—premised on Drs. Elzinga and Stiroh—after the Supreme Court’s decision in *Amex*. *See generally In re NCAA Athletic Grant-In-Aid Cap Antitrust Litig.* (“*Grant-in-Aid Cap II*”), 2018 WL 4241981 (N.D. Cal. Sept. 3, 2018). There, the NCAA argued that *Amex* saved Dr. Elzinga’s market definition opinions, requiring the court to revisit its prior *Daubert* ruling. *Id.* at \*1. Because Dr. Elzinga failed to identify the relevant product at issue, among other issues, the court rejected the argument. *Id.* at \*4. Dr. Stiroh makes the same errors, following the same erroneous multi-sided market definition approach. *See e.g.*, Ex. 16 (Stiroh Reb. Tr.) at 175:8-23 (identifying her relevant market as multi-sided, with two-sided being a “shorthand”); *see also supra* § IV.B. Her analysis similarly lacks any economic analysis about how many sides there are, who the participants are, and what the relevant network effects are. *See, e.g.*, Ex. 16 (Stiroh Reb. Tr.) at 184:14-188:3. Her analyses are no better than Dr. Elzinga’s, and no more than *ipse dixit*. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (“[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.”); *Vollrath Co. v. Sammi Corp.*, 9 F.3d 1455, 1462 (9th Cir. 1993) (rejecting market definition where “[t]here was no detailed examination of market data or analysis of cost, comparable usage, or comparative features of other competing products”).

## V. CONCLUSION

For the foregoing reasons, Dr. Stiroh’s opinions regarding procompetitive justifications and two-sided market should be excluded under the *Daubert* standard.

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<sup>8</sup> To be clear, Dr. Stiroh’s two-sided market definition opinions are *also* not supported by economists. *See e.g. Amex*, 138 S. Ct. at 2300 (“The first thing to note is that the majority defines ‘two-sided transaction platforms’ much more broadly than the economists do. As the economists who coined the term explain, if a ‘two-sided market’ meant simply that a firm connects two different groups of customers via a platform, then ‘pretty much any market would be two-sided, since buyers and sellers need to be brought together for markets to exist and gains from trade to be realized.’ The defining feature of a ‘two-sided market,’ according to these economists, is that ‘the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by the other side by an equal amount.’”) (Breyer, J., dissenting) (quoting Rochet & Tirole, *Two-Sided Markets: A Progress Report*, 37 *RAND J. Econ.* 645, 646 (2006)).



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